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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/995,690 | 11/29/2001 | James Y.C. Chang | 1875.1210003/RES/JTH | 9803 |
| 28393 | 7590 | 01/25/2005 | EXAMINER | |
| STERNE, KESSLER, GOLDSTEIN & FOX P.L.L.C. 1100 NEW YORK AVE., N.W. WASHINGTON, DC 20005 | | | PHAM, TUAN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2643 | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,690

Applicant(s)

CHANG, JAMES Y.C.

Examiner

TUAN A PHAM

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04/04/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-10 are rejected under 35 U.S.C. 102(a) as being anticipated by Kung (U.S. Patent No.: 6,037,825).

Regarding claim 1, Kung teaches a mixer circuit (see figure 7), comprising: a signal input (see figure 7, Vin+, Vin-); an RF transconductance circuit that is configured to convert an input differential signal received at said signal input to a differential current (see figure 1, transistor 11, transistor 12, current I1, Current I2, col.3, ln.38-67), said RF transconductance circuit having a pair of field effect transistors (see figure 7, transistor 11, transistor 12, col.5, ln.31-35); a LO switching circuit configured to switch said differential current between outputs of said mixer circuit at a rate determined by a differential LO signal (see figure 1, transistors 15-18, Vout+, Vout-, col.3, ln.13-54); and means for adding DC current to said pair of field effect transistors in said RF transconductance circuit (see figure 7, current source 24, 25, FET 11, 12, col.3, ln.55-67).

Regarding claim 2, Kung further teaches the mixer circuit, wherein said means for adding DC current includes at least one current source configured to generate said DC current (see figure 2, DC current 24, 25, col.3, ln.55-67).

Regarding claim 3, Kung further teaches the mixer circuit wherein said current source is a variable current source (see figure 2, select resistor 13, 14 are provide the variable current source).

Regarding claim 4, Kung further teaches the mixer circuit wherein said variable current source adjusts said DC current so as to reduce flicker noise in the mixer circuit (see col.1, ln.5-8).

Regarding claim 5, Kung further teaches the mixer circuit wherein said DC current bypasses said LO switching circuit (see col.4, ln.35-59).

Regarding claim 6, Kung teaches a mixer circuit (see figure 7), comprising: a signal input (see figure 7, Vin+, Vin-); an RF transconductance circuit that is configured to convert an input differential signal received at said signal input to a differential current (see figure 1, transistor 11, transistor 12, current I1, Current I2, col.3, ln.38-67) said RF transconductance circuit having a pair of field effect transistors (see figure 7, transistor 11, transistor 12, col.5, ln.31-35); a LO switching circuit configured to switch said differential current between outputs of said mixer circuit at a rate determined by a differential LO signal (see figure 1, transistors 15-18, Vout+, Vout-, col.3, ln.13-54); a first current source configured to add a first DC current to a first FET of said pair of FETs (see figure 7, first current source 24, FET 11, 12); and a second current source

configured to add a second DC current to a second FET of said pair of FETs (see figure 7, second current source 25, FET 11, 12).

Regarding claims 7-8, Kung further teaches the mixer circuit wherein said first and second variable current source adjusts said DC current so as to reduce flicker noise in the mixer circuit (see col.1, ln.5-8).

Regarding claim 9, Kung further teaches the mixer circuit wherein said first and second DC current bypasses said LO switching circuit (see col.4, ln.35-59).

Regarding claim 10, Kung further teaches the mixer circuit wherein said first DC current is added to a drain of said first FET in said pair of FETs, and said second DC current is added to a drain of said second FET in said pair of FETs (see figure 7, first current 24, second current 25, transistors 11, 12).

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In order to expedite the prosecution of this application, the applicants are also requested to consider the following references. Although Tanji et al. (U.S. Patent No. 6,583,661), White et al. (U.S. Patent No. 6,631,257), Tiller (U.S. Patent No. 6,529,721), and Gilbert (U.S. Patent No. 6,112,497) are not applied into this Office Action; they are also called to Applicants attention. They may be used in future Office Action(s). These references are also concerned for supporting the system and method for a mixer circuit with anti series transistors.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Tuan A. Pham** whose telephone number is (703) 305-4987. The examiner can normally be reached on Monday through Friday, 8:00 AM-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Curtis Kuntz can be reached on (703) 305-4708 and

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Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist, tel. No. 703-305-4700).

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have question on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Art Unit 2643
January 15, 2005
Examiner

Tuan Pham



HUYEN LE
PRIMARY EXAMINER